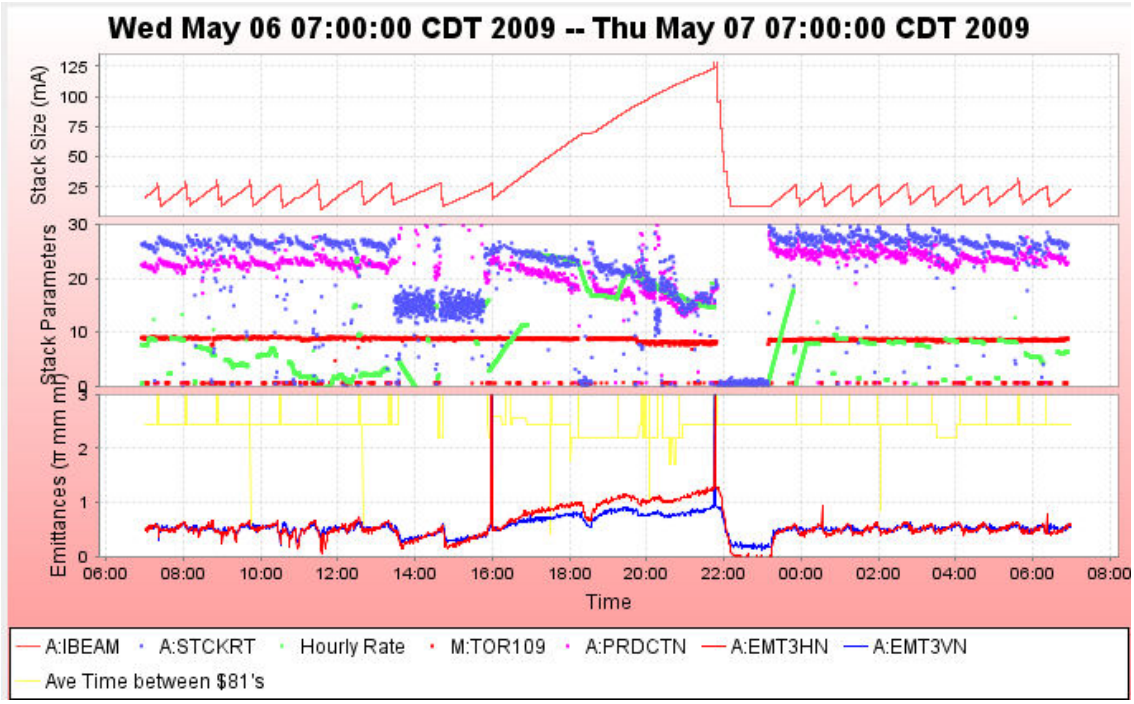
2009-05-07 Thursday Pbar Notes

Wednesday, May 06, 2009
12:35 PM

Stacking

- Stacked 497mA
  - <stacking rate> = 24.9mA/hr
  - <production> = 22.2e-6/p
  - <beam on target> =
  - Stack rate down and production up from previous days in part due to the large stack on the evening shift, and extended running at a 2.4 second cycle time.
- D:EKIK module #1 continues to drift by 100nsec or so. This is similar to what module #2 was doing a month or so ago.
- The jump in AP1 losses reported yesterday was do to the MI fuzzer being out of tune.
  - The fuzzer removes beam from the gap on either side of the slip stacked stacking pulse in the MI at 8GeV.
  - When the 8 GeV MI tune is changed, the fuzzer needs to be retuned.

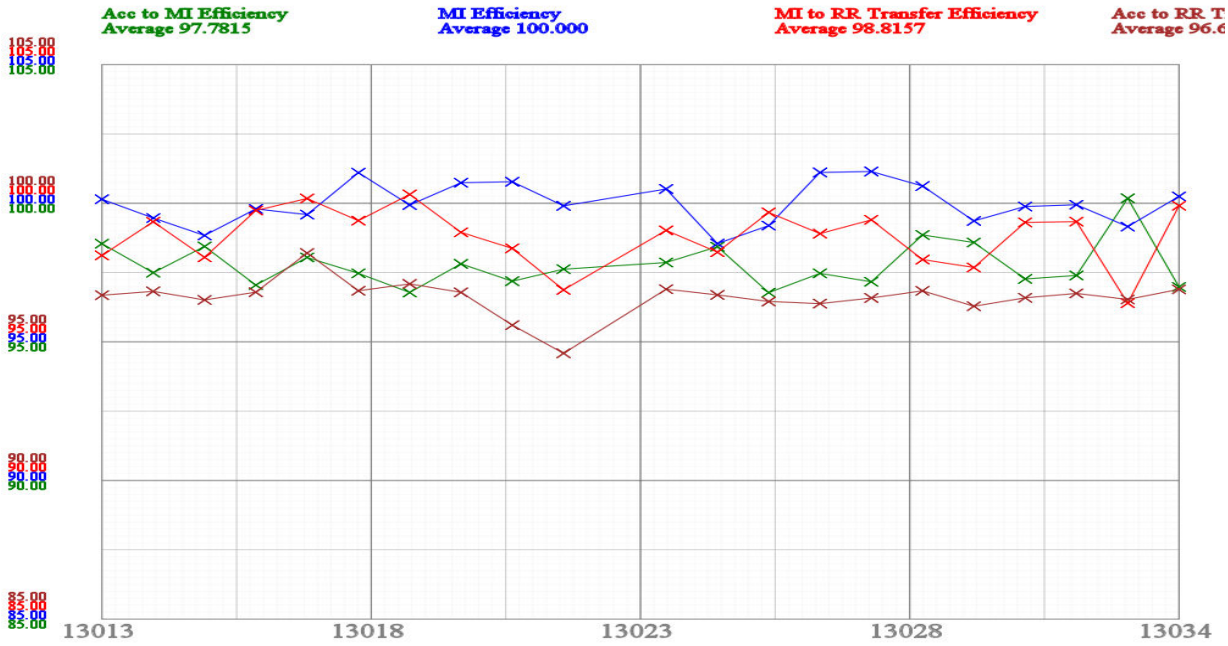


Transfers

- Transferred 289e10 in 46 transfers over 21 sets.
  - Average Accumulator to Recycler efficiency was 96%
  - Taking out the seven transfers in set 13022 from 135mA, we get 96.7%

Column 1 Number_0_Pbar Transfer Shot #	Column 4 Number_3_Transfer Time		Column 21 Number_20_A:IBEAMB sampled on $91 (A:BEAM7), E10	Column 22 Number_21_A:IBEAMB sampled on $94 (A:BEAM9), E10	Unstacked (mA)	Column 23 Number_22_R:BEAMS (R:BEAME0[0]) pre xfer E10	Column 24 Number_23_R:BEAM (R:BEAME0[1]) post xfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Transfers	Sets	Column 5 Number_4_Acc Horizontal Emittance	Column 6 Number_5_Acc Vertical Emittance	Column 8 Number_7_Acc Longitudinal Emittance
	Totals =>				489.43			469.47	95.92%	97.59%	97.65%	46	21	4.8581	4.5394	1.8634
13033	Thursday, May 07, 2009	6:22	25.67	8.50	18.48	402.07	419.77	17.85	96.59%	99.75%	98.90%	2	1	4.337	4.15	1.85
13032	Thursday, May 07, 2009	4:49	29.02	10.50	19.81	384.57	403.54	19.18	96.81%	97.48%	97.61%	2	1	5.019	4.53	1.884
13031	Thursday, May 07, 2009	4:08	25.73	9.51	17.52	369.37	386.09	16.91	96.52%	97.47%	96.94%	2	1	4.818	4.374	1.864
13030	Thursday, May 07, 2009	3:24	26.17	9.63	17.84	353.69	370.69	17.17	96.22%	98.84%	97.56%	2	1	4.886	4.72	1.878
13029	Thursday, May 07, 2009	2:45	25.75	8.87	18.14	337.55	354.99	17.56	96.78%	98.64%	99.39%	2	1	4.557	4.381	1.852
13028	Thursday, May 07, 2009	2:00	28.22	10.02	19.49	319.95	338.61	18.79	96.43%	97.18%	98.27%	2	1	4.886	4.58	1.87
13027	Thursday, May 07, 2009	1:16	26.93	9.58	18.63	303.24	321.08	17.94	96.27%	97.78%	98.74%	2	1	4.764	4.624	1.88
13026	Thursday, May 07, 2009	0:32	26.12	9.30	18.10	286.67	304.02	17.47	96.53%	96.84%	96.33%	2	1	4.791	4.455	1.88
13025	Thursday, May 07, 2009	23:53	25.26	8.93	17.65	270.33	287.34	17.05	96.60%	98.29%	97.31%	2	1	4.404	4.307	1.882
13024	Wednesday, May 06, 2009	21:50	26.84	9.19	18.93	252.60	270.88	18.33	96.84%	97.65%	98.34%	2	1	4.61	4.437	1.868
13022	Wednesday, May 06, 2009	15:59	124.61	9.54	116.10	147.20	254.57	108.44	93.40%	97.00%	97.07%	7	1	6.889	5.654	1.908
13021	Wednesday, May 06, 2009	14:39	28.07	14.94	13.13	513.93	526.48	12.55	95.60%	97.19%	97.94%	1	1	5.498	4.846	1.821
13020	Wednesday, May 06, 2009	13:23	28.22	8.37	21.03	496.89	517.10	20.38	96.88%	97.95%	98.77%	2	1	4.912	4.68	1.828
13019	Wednesday, May 06, 2009	12:36	27.95	9.86	19.39	481.56	500.12	18.82	97.05%	96.82%	96.72%	2	1	4.718	4.696	1.874
13018	Wednesday, May 06, 2009	11:29	30.14	9.74	21.63	462.69	483.42	20.93	96.76%	97.74%	98.25%	2	1	5.023	4.576	1.829
13017	Wednesday, May 06, 2009	10:30	26.77	6.83	20.66	445.13	465.10	20.24	97.99%	98.17%	97.57%	2	1	4.05	4.031	1.777
13016	Wednesday, May 06, 2009	9:44	26.04	7.71	19.64	428.49	447.35	19.02	96.83%	97.08%	97.02%	2	1	4.519	4.211	1.843
13015	Wednesday, May 06, 2009	8:53	26.82	9.28	18.85	412.02	429.99	18.22	96.62%	98.24%	97.53%	2	1	5.046	4.781	1.884
13014	Wednesday, May 06, 2009	8:06	26.42	9.42	19.07	395.41	413.62	18.48	96.89%	97.16%	96.93%	2	1	4.673	4.107	1.881
13013	Wednesday, May 06, 2009	7:21	26.37	9.41	18.24	379.61	397.05	17.64	96.69%	98.46%	98.71%	2	1	4.767	4.696	1.866
13012	Wednesday, May 06, 2009	6:41	24.78	8.98	17.09	364.62	381.00	16.53	96.68%	96.75%	97.75%	2	1	4.854	4.492	1.912

Column 4 Number_3_Transfer Time		Column 21 Number_20_A:IBEAMB sampled on $91 (A:BEAM7), E10	Column 22 Number_21_A:IBEAMB sampled on $94 (A:BEAM9), E10	Unstacked (mA)	Column 23 Number_22_R:BEAMS (R:BEAME0[0]) pre xfer E10	Column 24 Number_23_R:BEAM (R:BEAME0[1]) post xfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Transfers	Sets	Column 5 Number_4_Acc Horizontal Emittance	Column 6 Number_5_Acc Vertical Emittance	Column 8 Number_7_Acc Longitudinal Emittance
Totals =>				373.33			361.04	96.71%	97.78%	97.83%	46	20	4.7566	4.4837	1.8612



Studies

- None

Requests

- Water cage access to check water levels.
  Check collection lens water system reservoir tank level. Job 10170.

The Numbers (7am to 7am)

- Paul's Numbers
  - Most in a half hour: 13.49 mA at Thu May 07 02:33:38 CDT 2009
  - Best Hour: 28.56 mA on 20-Dec-08
  - Average Production 19.79 e-6/proton Best: 25.41 e-6/proton on 01/30/2008
  - Average Protons on Target 7.52 e12 Best: 8.77 e12 on 07/24/2007
- Al's Numbers
  - Stacking
    - Pbars stacked: 497.01 E10
    - Time stacking: 22.73 Hr
    - Average stacking rate: 21.87 E10/Hr
  - Uptime
    - Number of pulses while in stacking mode: 32070
    - Number of pulses with beam: 29835
    - Fraction of up pulses was: 93.03%
  - The uptime's effect on the stacking numbers
    - Corrected time stacking: 21.14 Hr
    - Possible average stacking rate: 23.51 E10/Hr
    - Could have stacked: 534.24 E10/Hr
  - Recycler Transfers
    - Pbars sent to the Recycler: 489.43 E10
    - Number of transfers : 46
    - Number of transfer sets: 21
    - Average Number of transfer per set: 2.19
    - Time taken to shoot including reverse proton tuneup: 00.27 Hr
    - Transfer efficiency: 95.82%
  - Other Info

Other Info

- Average POT : 8.07 E12
- Average production: 20.65 pbars/E6 protons

- * Missed one or more A:IBEAM7 events somewhere in the middle of the user selected time span. Calculated time shot using 13 secs per transfer.
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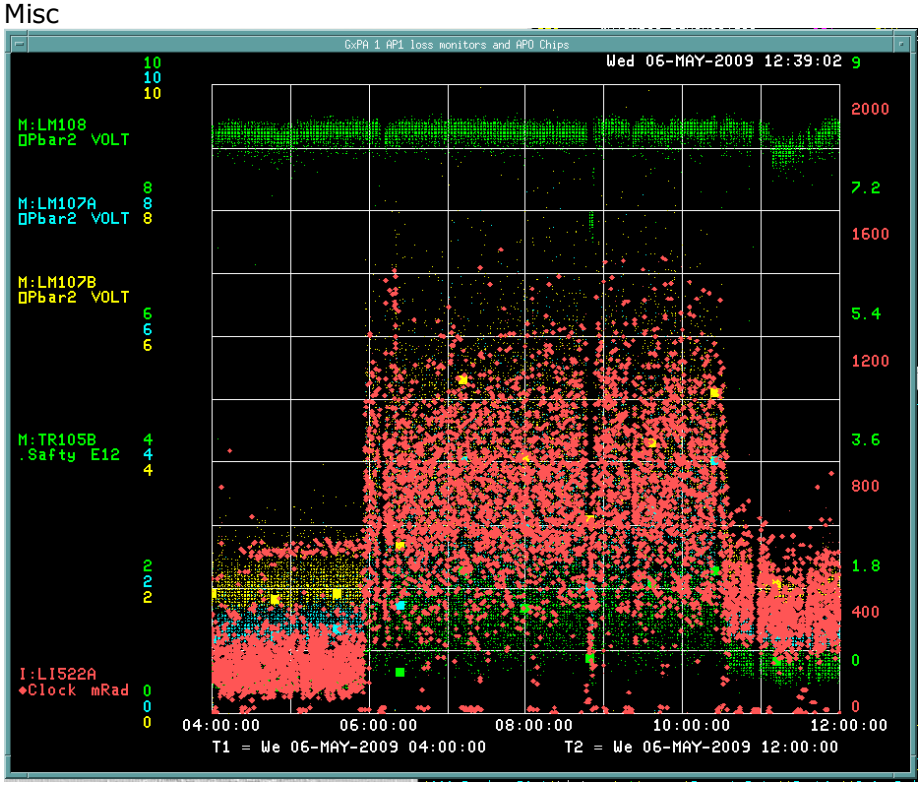
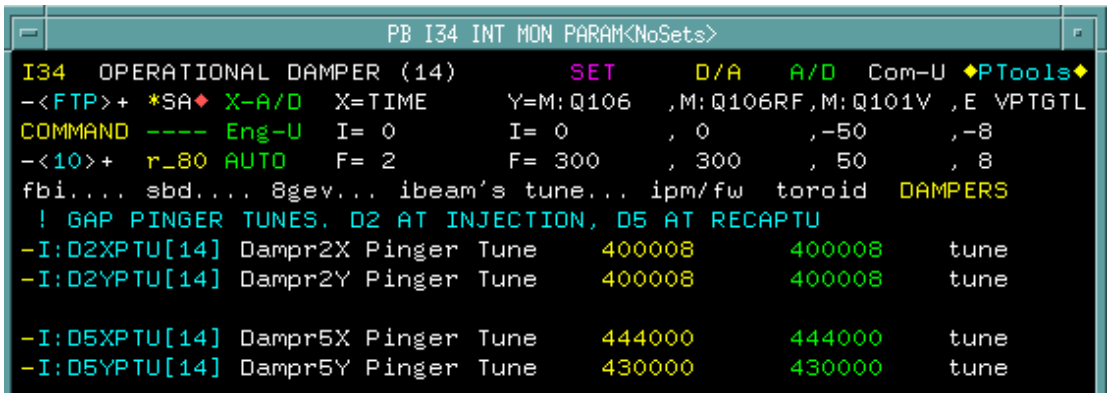
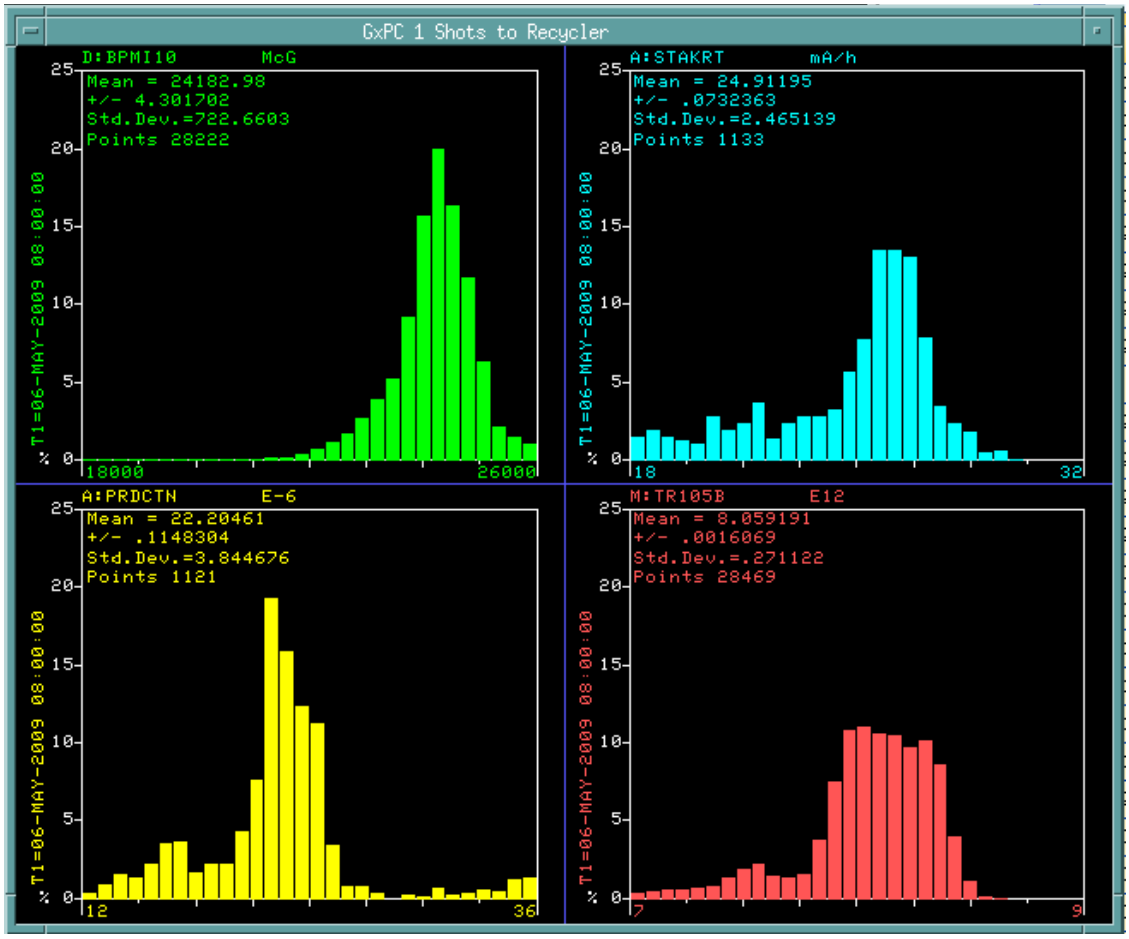
Misc

- 

  - 

  - Increased losses in the last four BLMs in the AP1 line were due to the fuzzer being mis-tuned.
    - The Fuzzer clears the 36 bunch gaps on each side of the slip-stacked Pbar bunch at 8GeV.
    - The Fuzzer operates at the 8GeV tune value.
    - If the MI 8GeV tunes are changed, the Fuzzer is operating at the wrong frequency and will not work efficiently..
    - We can see this in MI extraction losses, I:LI522A as well as the last four loss monitors in the AP1 line (M:LM106, M:LM107A, M:LM107B and M:LM108).
    - To compensate, the Fuzzer must be retuned via I:D5XPTU[14] and I:D5YPTU[14] after the MI tunes are changed. The tune values are not the same, but the deltas should be close.


GxPC 1 Shots to Recycler
D:BPMI10 McG
Mean = 24182.98
+/- 4.301702
Std.Dev.=722.6603
Points 28222
T1=06-MAY-2009 08:00:00
18000
26000
A:STAKRT mA/h
Mean = 24.91195
+/- .0732363
Std.Dev.=2.465139
Points 1133
T1=06-MAY-2009 08:00:00
18
32
A:PRDCTN E-6
Mean = 22.20461
+/- .1148304
Std.Dev.=3.844676
Points 1121
T1=06-MAY-2009 08:00:00
12
36
M:TR105B E12
Mean = 8.059191
+/- .0016069
Std.Dev.=.271122
Points 28469
T1=06-MAY-2009 08:00:00
7
9

Logbooks